US EPA

Bally Ground Water Contamination Site Superfund Cleanup

August 2003

UPDATE

The following information is provided by EPA to update users of the Borough of Bally municipal water system on the work currently being performed to resolve the 1,4-dioxane issue discovered last February.

Background

In February 2003, the contaminant 1,4-dioxane was identified in ground water at the Bally Superfund Site, and in the Borough of Bally's municipal water system. This situation was discussed with the public during meetings on March 19, 2003. American Household Inc. (AHI) committed to explore options for dealing with the 1,4-dioxane contamination in the municipal water system. AHI made this commitment because the company purchased Bally Engineered Systems (BES) and assumed the environmental liabilities of the former BES facility, including the responsibility for treatment of the municipal supply well. The options include developing a new supply well and/or treating ground water from the existing supply well. The United States Environmental Protection Agency (EPA) is overseeing this effort and all work associated with the cleanup of the Bally Ground Water Contamination Superfund Site.

New Well Option

Consultants for AHI are currently performing geophysical surveys (studies of underground features) at locations being considered for siting a new well. Results of the surveys will be used to determine which site is likely to be the best location for a new municipal well. Access to the survey sites was arranged by AHI with individual property owners.

Geophysical surveys use various technologies, such as ground-penetrating radar, to determine what types of soil and rock are located beneath the ground surface at a particular location. When the geophysical surveys are completed in August/September 2003, AHI will contact the property owner of the most-promising site to arrange for the installation of a test well. A test well is required to determine whether the new location will yield enough ground water to meet the needs of the municipal supply system.

1,4-Dioxane Treatment Option

Consultants for AHI have completed "ozonation" and "oxidation" tests for water from the Borough's municipal well. The tests were performed to determine the feasibility of treating the 1,4-dioxane identified in the present municipal water system to levels determined to be protective of public health. AHI is currently preparing a report for EPA and

PADEP, documenting the results of these tests.

For More Information

For additional information about the evaluation of the Bally Borough Water Supply System, please contact:

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Or use EPA's Superfund Hotline:
1-800-553-2509

Or visit our website:
www.epa.gov/superfund

Next Update:
Expect another update: Nov-Dec 2003

Addendum:

Responses to Questions Raised at March 2003 Public Meetings

Several questions were raised at public meetings held in March of 2003 for the Bally Groundwater Contamination Superfund Site that could not be answered "on the spot." Many of the questions from the public meeting were answered in EPA's fact sheet attachment dated May 2003. The questions below required more time-consuming research, and we were not able to include them in our earlier fact sheet.

1. What effects might 1,4-dioxane have on cows (and what accumulation in milk and meat might occur)?

The exposure that consumers could expect from eating beef and drinking milk from cows exposed to the Bally water supply appears to be minimal. Based on the properties of 1,4-dioxane, very little would be expected to accumulate in beef or milk. The estimated cancer risks would be thousands of times below EPA's level of concern.

The daily dose that dairy and beef cows would be expected to get from drinking the water would be at least 220,000 times less than toxic and lethal doses for laboratory animals reported in the scientific literature. The total lifetime dose for the cows would be about 60 to 100 times less than toxic and lethal doses reported in the scientific literature. While no minimum toxic doses for cows could be found in the literature, these factors provide a considerable margin of safety.

It should also be noted that FDA recommendations allow 1,4-dioxane to be present in new veterinary medicines up to 380,000 ppb, with a permitted daily exposure of 3.8 mg/day. This exposure would not be

exceeded for the beef cow or for a dairy cow consuming up to about 17 gal/day of water. If cows consume more water than that, the FDA level could be slightly exceeded, but this does not necessarily indicate toxic effects.

2. *What effects might 1,4-dioxane have on people consuming vegetables from gardens that used the Bally water?*

There are two main pathways by which garden vegetables could take up 1,4-dioxane in water: through the roots or through the leaves.

There is very little available research on root uptake of 1,4-dioxane. It appears that this kind of uptake may occur, although most of what is taken up is expected to be transpired (given off as vapor) from the plant, rather than accumulated within it. Using an EPA model that estimates root uptake, home-grown vegetable consumption for the typical adult would be acceptable. (Under this model, the typical adult would not reach the one-in-a-million cancer risk until consuming about 400 lbs. of home-grown produce per year. *Children would not reach that cancer-*risk level unless they were consuming about 300 lbs. of home-grown produce per year.)

There is less information available about leaf uptake of 1,4-dioxane in water (for example, from watering leafy plants like lettuce).

While most leaves are not expected to take up much water, the dioxane might be taken up more readily than water. 1,4-Dioxane is expected to have both a strong affinity for water and some ability to penetrate the protective leaf cuticle. It is not clear which property would control dioxane's overall behavior in the leaf.

In reality, 1,4-dioxane's plant uptake is likely to vary by plant species and growing conditions. The available information for use of the water on garden plants does not suggest a major health problem, but there is admittedly little information on which to base any definitive conclusion. Any potential risks from leaf uptake could also be minimized by watering just the soil rather than the leaves.

For additional information about <u>health-related concerns</u> or <u>these questions and answers</u>, please contact EPA's toxicologist for the site:

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or
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US EPA UPDATE

Bally Borough Water Supply System Evaluation

Plus

Answers to Meat, Dairy, and Gardening Questions

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US EPA UPDATE: Bally Borough Water Supply System Evaluation